

WHAT IS CLAIMED IS:

1. A residual gas-removing device for a gas supply apparatus in a semiconductor fabricating facility, the residual gas removing device, comprising:

a low stress valve disposed between a mass flow controller and a chamber, the low stress valve being operative for cutting off or supplying a gas from the mass flow controller to the chamber;

a gas inlet line connecting the mass flow controller and the low stress valve; and

a WF6 gas removing apparatus in flow communication with the gas inlet line of the low stress valve to remove a residual WF6 gas in the gas inlet line.

2. The residual gas removing device as claimed in claim 1, further comprising an interim gas line disposed between the WF gas removing apparatus and the gas inlet line.

3. The residual gas removing device as claimed in claim 1, wherein the WF6 gas removing apparatus comprises:

a fore line vent valve connected to the gas inlet line of the low stress valve to vent the residual WF6 gas in the gas line; and

a pump connected to the fore line vent valve for pumping the residual WF6 gas through the fore line vent valve.

4. The residual gas removing device as claimed in claim 1, wherein the WF6 gas removing apparatus comprises:

a fore line vent valve connected to the interim gas line, and the interim gas line is connected to the gas inlet line of the low stress valve to vent the residual WF6 gas in the gas line; and

a pump connected to the fore line vent valve for pumping the residual WF6 gas through the fore line vent valve.

5. The residual gas-removing device as claimed in claim 3, further comprising a fore line connected to an outlet of the fore line vent valve providing a path for removing residual WF6 gas in the gas inlet line.

6. The residual gas-removing device as claimed in claim 4, further comprising a fore line connected to an outlet of the fore line vent valve providing a path for removing residual WF6 gas in the gas inlet line.

7. The residual gas removing device as claimed in claim 1, wherein the WF6 gas removing apparatus comprises a bypass valve connected to the gas inlet line of the low stress valve to vent the residual WF6 gas in the gas line.

8. The residual gas removing device as claimed in claim 2, wherein the WF6 gas removing apparatus comprises a bypass valve connected to the interim gas line, which in turn is connected to the gas inlet line of the low stress valve to vent the residual WF6 gas in the gas line.

9. The residual gas removing device as claimed in claim 1, wherein the WF6 gas removing apparatus comprises a pneumatic valve connected to the gas inlet line

of the low stress valve to vent the residual WF6 gas in the gas line.

10. The residual gas removing device as claimed in claim 2, wherein the WF6 gas removing apparatus comprises a pneumatic valve connected to the interim gas line, which in turn is connected to the gas inlet line of the low stress valve to vent the residual WF6 gas in the gas line.

11. A method of removing a residual gas remaining in a gas inlet line connecting a mass flow controller and a chamber, the method comprising:

providing a low stress valve at one end of the gas inlet line and in flow communication therewith;

closing the low stress valve to cut off the gas supply between the mass flow controller and the chamber, thereby leaving a residual gas in the gas inlet line;

opening a vent valve connected to another end of the gas inlet line; and
pumping the residual gas through the vent valve and into the atmosphere.